GENERAL CHEMISTRY DATA VALIDATION SUMMARY FOR DATA PACKAGE:
B098Y7-TMA-628 (923-E418 628GEN.UP2)

MEMORANDUM

TO: 200 UP-2 Project QA Record March 18, 1994

FR: Thomas Stapp, Golder Associates Inc.

RE: GENERAL CHEMISTRY DATA VALIDATION SUMMARY FOR DATA PACKAGE B098Y7-TMA-628 (923-E418 628GEN.UP2)

INTRODUCTION

This memo presents the results of data validation on data package B098Y7-TMA-628 prepared by TMA laboratory. A list of samples validated along with the analyses reported and the methods of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSES
B098Y7	10/07/93	SOIL	SEE NOTE 1
B098Y8	10/07/93	SOIL	SEE NOTE 2

Notes:

1. Indicates the sample was analyzed for Nitrate/Nitrite as N (by colorimetry), and fluoride, chloride, and sulfate anions (by ion chromatography).

2. Indicates the sample was analyzed for Nitrate/Nitrite as N (by colorimetry).

Data validation was conducted in accordance with the WHC statement of work (WHC 1993a) and validation procedures (WHC 1993b). Attachments 1 through 5 provide the following information as indicated below:

Attachment 1. Glossary of Data Reporting Qualifiers
Attachment 2. Summary of Data Qualifications
Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
Attachment 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data.

Detection Limits. Detection limit goals were met.

Completeness. The data package was complete for all requested analyses. A total of two (2) samples were validated in this data package with a total of five (5) determinations reported, all of which were deemed valid. This results in a completeness of 100 percent which meets the work plan completeness objective of 90 percent.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

No minor deficiencies were identified during data validation which required qualification of data.

REFERENCES

WHC, 1993a, Validation of 200 UP-2 Data, Statement of Work, Analytical Laboratory Data Validation, Task Order S-94-18, December 14, 1993, Purchase Order M073750. Westinghouse Hanford Company, Richland, Washington.

WHC, 1993b, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993. Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF INORGANIC DATA REPORTING QUALIFIERS

B - Indicates the constituent was analyzed for and detected. The concentration reported is less than the contract required detection limit (CRDL) but greater than the instrument detection limit (IDL). The associated data should be considered usable for decision making purposes.

U - Indicates the constituent was analyzed for and not detected. The concentration reported is the sample detection limit corrected for aliquot size, dilution and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.

UJ - Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during data validation the concentration may not accurately reflect the sample detection limit. The associated data have been qualified as estimated but should be considered usable for decision making purposes.

BJ - Indicates the constituent was analyzed for and detected at a concentration less than the contract required detection limit (CRDL) but greater than the instrument detection limit (IDL). Due to a minor quality control deficiency identified during data validation the associated data have been qualified as estimated, but should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. Due to a minor quality control deficiency identified during data validation the associated data have been qualified as estimated, but should be considered usable for decision making purposes.

UR - Indicates the constituent was analyzed for and not detected. Due to a major quality control deficiency identified during data validation, the associated data have been qualified as unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. Due to a major quality control deficiency identified during data validation, the associated data have been qualified as unusable for decision making purposes.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: B098Y7-TMA-628	REVIEWER: T. STAPP	DATE: 3-07-94	PAGE 1 OF 1
COMMENTS: WET CHEMISTRY			
COMPOUND/ANALYTE	QUALIFIER	SAMPLES AFFECTED	REASON
ALL NITRATE/NITRITE VALUES REPORTED AS LESS THAN (<)	U	B098Y7 B098Y8	QUALIFIER APPLIED TO BE CONSISTENT WITH NORMAL REPORTING PRACTICE

ATTACHMENT 3

QUALIFIED DATA SUMMARY and ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: B098Y7-TMA-628

Parameter	Units	Samp.# / Date / Location / Depth / Type / Comments	Result	Q	Samp.# / Date / Location / Depth / Type / Comments	Result	Q
		B098Y7 10-7-93 --- --- --- ---			B098Y8 10-7-93 --- --- --- ---		
CHLORIDE	MG/KG		6.000			---	
FLUORIDE	MG/KG		3.200			---	
SULFATE	MG/KG		8.000			---	
NITRATE+NITRITE-N	MG-N/K		2.450	U		2.480	U

Verified [illegible] 3-14-94

3-8-94

Skinner&Sherman REPORT Work Order # S3-10-098

Received: 10/12/93 Results by Sample

Q

SAMPLE ID B098Y7 SAMPLE # 01 FRACTIONS: A
Date & Time Collected 10/07/93 Category SOIL

NITR_S <2.45 U
mg N/kg

SAMPLE ID B098Y8 SAMPLE # 02 FRACTIONS: A
Date & Time Collected 10/07/93 Category SOIL

NITR_S <2.48 U
mg N/kg

SAMPLE ID B098Y8 DUPL SAMPLE # 02 FRACTIONS: B
Date & Time Collected 10/07/93 Category SOIL

NITR_S <2.48
mg N/kg

SAMPLE ID B098Y8 SPIKE SAMPLE # 02 FRACTIONS: C
Date & Time Collected 10/07/93 Category SOIL

NITR_S 22.1
mg N/kg

SAMPLE ID LCSS SAMPLE # 03 FRACTIONS: A
Date & Time Collected not specified Category SOIL

NITR_S 1.97
mg N/L

94/225-0830

Verified 3-7-94

-009

Skinner & Sherman Laboratories Inc. 300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-7200
1-800-4 LAB TEST FAX (617) 890-3883

3-18-94 000009

TMA Inc. REPORT Work Order # A3-10-014

Received: 10/11/93 Results by Sample

SAMPLE ID 8098Y7 FRACTION 01E TEST CODE WCCLPS NAME Anions in Solids

Date & Time Collected 10/07/93 Category

ANIONS AND WET CHEMISTRY - SOLIDS				
ANALYSIS	METHOD	RESULT	UNITS	LIMIT
Chloride	300.0	6.0	mg/kg	1.0
Fluoride	300.0	3.2	mg/kg	0.5
Sulfate	300.0	8	mg/kg	5

FORM I

Verified

3-7-94

9411325.0881

010

ATTACHMENT 4

LABORATORY NARRATIVE and CHAIN-OF-CUSTODY DOCUMENTATION

000006

3-18-94

94A225.0833

GENERAL CHEMISTRY RESULTS

CASE NO. 10-014

Soil Sample #:

B098Y7 B098Y9

CASE NARRATIVE

Sample B098Y7 did not exhibit homogeneity. Therefore, the percent RPD for Fluoride was 24.6%.

No other problems were encountered during sample analysis. All QC results were acceptable.

Maureen Parrish 12/9/93

Maureen Parrish

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 10-7-93

Ice Chest No.: SML-54B — Field Logbook No.: EFL-1091

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: OVERNIGHT AIR SERVICE

Shipped to: TMA

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) NONE NOTED

Sample Identification

1) B098Y7

1,250ml	~~P~~:CLP;TAL Metals,Hg,Ti
1,250ml	aGs:VOA CLP
1,250ml	aG:Semi-VOA CLP
1,125ml	G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml	P/G:Anions NO2,NO3 (EPA 353.2)
1,125ml	G:Cyanide CLP
1,125ml	Gw:Kerosene (8015M)
1,1000ml	P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

2) 1,250ml aGs PCB/Pest

~~1,250ml~~	~~P:CLP;TAL Metals,Hg,Ti~~
1,250ml	~~Gs:VOA CLP~~
1,250ml	~~aG:Semi-VOA CLP~~
1,125ml	~~G:Anions F,Cl,SO4 (EPA 300.0)~~
1,125ml	P/G:Anions NO2,NO3 (EPA 353.2)
1,125ml	G:Cyanide CLP
1,125ml	Gw:Kerosene (8015M)
1,1000ml	P/G:Gross alpha/beta (EP-10), Gamma Spec to include,~~Cs-134,~~Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) ~~U-235,~~U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (~~RC-25,~~ RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, ~~EP-92, EP-93,~~ EP-5) Se-79

3) SER 10-7-93

~~1,250ml~~	~~P:CLP;TAL Metals,Hg,Ti~~
1,250ml	~~Gs:VOA CLP~~
1,250ml	~~aG:Semi-VOA CLP~~
1,125ml	~~G:Anions F,Cl,SO4 (EPA 300.0)~~
1,125ml	P/G:Anions NO2,NO3 (EPA 353.2)
1,125ml	G:Cyanide CLP
1,125ml	Gw:Kerosene (8015M)
1,1000ml	P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,~~Eu-152,~~ Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (~~EP-70,~~ EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) ~~Sr-90 (RC-306,~~ RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

[ ] Field Transfer of Custody

Chain of Possession (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
Lorene E. Rogers 10-8-93 1122	J G Hogan	10-8-93 / 1122
J G Hogan 10-9-93 1135	H. Narciso TMA/NORCAL	10-11-93 8:00

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

Recvd SATURDAY 10-9-93 SIGNED 10/11/93

013

N3??050

HANFORD ANALYTICAL SERVICES MANAGEMENT

RECORD OF DISPOSITION

ROD-93-0241
Record of Disposition No.

DATE: November 4, 1993

LABORATORY: TMA

PROJECT TITLE/NO.: 200-UP-2 / 93-263

NCR NO.: N/A

SAMPLE IDENTIFICATION NUMBERS: B098Y7, B098Y9

DESCRIPTION OF EVENT:

On October 25th, HASM received direction regarding samples B098Y7 and B098Y9 taken 4-6' from the surface. The entire suite of analyses listed on SAF 93-263 were requested for sample B098Y7 and VOA's were requested for the trip blank (sample B098Y9). HASM was informed that samples taken from the 4-6' depth should only have radiochemistry analyses requested since they are apart of a sitewide background study. TMA was subsequently informed to cancel all non-radchem analyses for sample B098Y7 and cancel the VOA analysis for B098Y9. On November 3rd, HASM was informed that all of the requested analyses on the Chain of Custody should be performed for samples B098Y7 and B098Y9. Due to the delay, two analyses (CN and Hg) exceeded holding time limits.

DISPOSITION OF SAMPLES:

With the customer's consent, TMA was instructed to proceed with all the analyses listed on the Chain of Custody, including CN and Hg which exceeded holding times. The customer understands that data obtained for CN and Hg may be for information only.

APPROVAL SIGNATURES:

Jon W. Ball — 11-4-93
HASM Project Coordinator (Print/Sign Name) — Date

Mark Wasemiller — 11/12/93
Technical Representative (Print/Sign Name) — Date

N/A
Quality Assurance (Print/Sign Name) — Date

014

Westinghouse Hanford Company	CHAIN OF CUSTODY	3-18-94

Custody Form Initiator L E ROGERS

Company Contact L E ROGERS — Telephone 376-7690

Project Designation/Sampling Locations 200-UP-2 — Collection Date 10-7-93

Ice Chest No. SML-54B — Field Logbook No. EFL-1091

Bill of Lading/Airbill No. — Offsite Property No.

Method of Shipment OVERNIGHT AIR SERVICE

Shipped to TMA

Possible Sample Hazards/Remarks Keep samples at 4C (SOIL) NONE NOTED

Sample Identification

1) B098X8
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
1,1000ml P/G:Gross beta (EP-10), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5),Tc-99 (RC-24, RC-604)

2)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
1,1000ml P/G:Gross beta ~~(EP-10), Total Uranium~~ (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5),Tc-99 (RC-24, RC-604)

3) JER 10-8-93
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
1,1000ml P/G:Gross beta (EP-10), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5),Tc-99 (RC-24, RC-604)

9411225.0846

[ ] Field Transfer of Custody

Chain of Possession (Sign and Print Names)		
Relinquished by: Karen E. Rogers 10-8-93 1120	Received by: JG HOGAN JG Hogan	Date/Time: 10-8-93 / 1120
Relinquished by: JG HOGAN JG Hogan 10-8-93 / 1135	Received by: H. NARCISO TMA/NORCAL	Date/Time: 10-11-93 / 8:00
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

Recd SATURDAY 10-9-93 OPENED 10-11-93

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E (circled)

PROJECT: 200 UP-2		DATA PACKAGE: BC98Y7-TMA-628	
VALIDATOR: T. Stapp	LAB: TMA / Skinner & Sh.	DATE: 3-4-94	
CASE: N3-10-030		SDG:	

ANALYSES PERFORMED

☐ Anions/IC	☐ TOC	☐ TOX	☐ TPH-418.1	Oil and Grease	Alkalinity
☐ Ammonia	☐ BOD/COD	☑ Chloride (2)	☐ Chromium-VI	☐ pH	☒ NO_3/NO_2 (2)
☑ Sulfate (2)	☐ TDS	☐ TKN	☐ Phosphate	☐	☐
☑ Fluoride (2)	☐	☐	☐	☐	☐

SAMPLES/MATRIX (1) BC98Y8, BC98Y7 / SOIL

(2) BC98Y7 / SOIL

9447274.0849

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? . . . . . (Yes) No N/A

Is a case narrative present? . . . . . (Yes) No N/A

Comments: Performed by WHC.

2. HOLDING TIMES

Are sample holding times acceptable? . . . . . (Yes) No N/A

Comments: See HOLDING TIME SUMMARY ~~sheet~~ ~~4-2~~ in checklist form B-1 (attached).

3-7-94

017

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

3. INSTRUMENT CALIBRATION

Was initial calibration performed for all applicable analyses? (Yes) No N/A
Are initial calibration results acceptable? . . . . . (Yes) No N/A
Was a calibration check performed for all applicable analyses? (Yes) No N/A
Are calibration check results acceptable? . . . . . (Yes) No N/A
Comments: _____

4. BLANKS

Were laboratory blanks analyzed? . . . . . (Yes) No N/A
Are laboratory blank results acceptable? . . . . . (Yes) No N/A
Were field/trip blanks analyzed? . . . NOTE ① . . . . . Yes No (N/A)
Are field/trip blank results acceptable? . . . . . Yes No (N/A)
Comments: ① Field QC including field/trip blanks were not identified in this sample set, but it has been requested. Field QC will be evaluated in the final data summary.

5. ACCURACY

Were spike samples analyzed at the required frequency? . . . . (Yes) No N/A
Are spike recoveries acceptable? . NOTE ① . . . . . (Yes) No N/A
Were LCS analyses performed at the required frequency? NOTE ② . (Yes) No N/A
Are LCS recoveries acceptable? . . . . . (Yes) No N/A
Comments: ① QC sheet indicates MS recovery of 95% for NO_2/NO_3 but calculated result is 111% - No qualifier applied.
② NO_2/NO_3 LCS raw data not provided but it has been requested. Reported results acceptable - within limits

6. PRECISION

Were laboratory duplicate samples analyzed at the required frequency? . . . . . (Yes) No N/A
Are laboratory duplicate sample RPD values acceptable? . . . . (Yes) No N/A
Are field duplicate RPD values acceptable? SEE NOTE ① . . . Yes No (N/A)
Are field split RPD values acceptable? . . . . . Yes No (N/A)

9/14/225.0849

018

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

Comments: ① Field QC, including field duplicate/splits were not identified at the time of validation, but have been requested. Field QC data will be evaluated in the final data summary.

7. ANALYTE QUANTITATION

Was analyte quantitation performed properly? . . . . . (Yes) No N/A

Comments:

8. REPORTED RESULTS AND DETECTION LIMITS

Are results reported for all requested analyses? . . . . . (Yes) No N/A

Are results supported in the raw data? . . . . . (Yes) No N/A

Are results calculated properly? . . . . . (Yes) No N/A

Do results meet the CRDLs? . . . . . (Yes) No N/A

Comments:

HOLDING TIME SUMMARY

SDG: B098Y7-TMA-628	VALIDATOR: Tom Staff	DATE: 3-7-94	PAGE 1 OF 1
COMMENTS:			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B098Y7	NO_2/NO_3	10-7-93	10-18-93	10-19-93	11	12	None
B098Y8	NO_2/NO_3	10-7-93	10-18-93	10-19-93	11	12	None
B098Y7	Fluoride	10-7-93	10-26-93	10-26-93	19	19	None
~~B098Y8~~	Chloride	↓	↓	↓	↓	↓	↓
↓	Sulfate						

3-7-94

B-1

WHC-SD-EN-SPP-002, Rev. 2

GENERAL GC DATA VALIDATION SUMMARY FOR DATA PACKAGE:
B098Y7-TMA-628 (923-E418 628EXTR.UP2)

MEMORANDUM

TO: 200 UP-2 Project QA Record March 18, 1994

FR: Thomas Stapp, Golder Associates Inc.

RE: GENERAL GC DATA VALIDATION SUMMARY FOR DATA PACKAGE B098Y7-TMA-628 (923-E418 628EXTR.UP2)

INTRODUCTION

This memo presents the results of data validation on data package B098Y7-TMA-628 prepared by TMA laboratory. A list of samples validated along with the analyses reported and the methods of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSES
B098Y7	10/07/93	SOIL	SEE NOTE 1

Notes:

1. Indicates the sample was analyzed for extractable fuel hydrocarbons (kerosene range) by SW-846 method 8015M.

Data validation was conducted in accordance with the WHC statement of work (WHC 1993a) and validation procedures (WHC 1993b). Attachments 1 through 5 provide the following information as indicated below:

Attachment 1. Glossary of Data Reporting Qualifiers
Attachment 2. Summary of Data Qualifications
Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
Attachment 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported ~~in the raw data~~.

Detection Limits. Detection limit goals were met.

Completeness. The data package was complete for all requested analyses. A total of one (1) sample was validated in this data package with a total of one (1) determination reported, which was deemed valid. This results in a completeness of 100 percent which meets the work plan completeness objective of 90 percent.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

The following minor deficiency was identified during data validation which required qualification of data.

Holding Time

- The holding time of 40 days for extractable fuel hydrocarbons was exceeded, therefore the result for sample B098Y7 has been qualified as estimated (UJ).

REFERENCES

WHC, 1993a, Validation of 200 UP-2 Data, Statement of Work, Analytical Laboratory Data Validation, Task Order S-94-18, December 14, 1993, Purchase Order M073750. Westinghouse Hanford Company, Richland, Washington.

WHC, 1993b, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993. Westinghouse Hanford Company, Richland, Washington.

002

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the constituent was analyzed for and detected in the associated laboratory blank. This qualifier is applied by the laboratory. During the process of data validation this qualifier may be replaced by other appropriate qualifiers as defined by the validation procedures. The associated data should be considered usable for decision making purposes.

U - Indicates the constituent was analyzed for and not detected. The concentration reported is the sample quantitation limit corrected for aliquot size, dilution and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.

UJ - Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during data validation the concentration reported may not accurately reflect the sample quantitation limit. The associated data should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. This qualifier may be applied by the laboratory to indicate a concentration which is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). During data validation this qualifier may be applied to indicate a minor quality control deficiency. However in either case, the associated data should be considered usable for decision making purposes.

NJ - Indicates presumptive evidence of a constituent at an estimated value. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

N - Indicates presumptive evidence of a constituent. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

JN - Indicates a tentatively identified compound (TIC) whose concentration and identification have been determined to be valid as a result of data validation. The associated data should be considered usable for decision making purposes.

UR - Indicates the constituent was analyzed for and not detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: B098Y7-TMA-628	REVIEWER: T. STAPP	DATE: 3-14-94	PAGE 1 OF 1
COMMENTS: EXTRACTABLE FUEL HYDROCARBONS			
COMPOUND/ANALYTE	QUALIFIER	SAMPLES AFFECTED	REASON
EXTRACTABLE FUEL HYDROCARBONS	UJ	B098Y7	HOLDING TIME EXCEEDED

ATTACHMENT 3

QUALIFIED DATA SUMMARY and ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: B098Y7-TMA-628

	Samp#	B098Y7	
	Date	10-7-93	
	Location	---	
	Depth	---	
	Type	---	
	Comments	---	
Parameter	Units	Result	Q
KEROSENE	MG/KG	5.000	UJ

Verified [illegible] 3-15-94

TMA Inc. REPORT Work Order # A3-10-014

Received: 10/11/93 Results by Sample

3-18-94

SAMPLE ID 8098Y7 FRACTION 01H TEST CODE 8015MS NAME EPA 8015M EXTRACT.

Date & Time Collected 10/07/93 Category

MODIFIED 8015 - EXTRACTABLE FUEL HYDROCARBONS

Matrix: SOIL
Date Analyzed: 12/01/93
Dilution factor: 1.00
Concentration Units: mg/Kg

Compound	Sample Result	PQL
Kerosene Range	ND	5.0
C10 - C16 Jet Fuel Range	NA	NA
C9 - C22 Diesel Range	NA	NA
Hydraulic Range	NA	NA

G

UJ

9412725.085

ND = Not detected at the specified limits

Form I

Verified 3-18-94

ATTACHMENT 4

LABORATORY NARRATIVE and CHAIN-OF-CUSTODY DOCUMENTATION

0000002A
~~R~~ 3-18-94

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 10-7-93

Ice Chest No.: SML-54B — Field Logbook No.: EFL-1091

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: OVERNIGHT AIR SERVICE

Shipped to: TMA

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) NONE NOTED

Sample Identification

1) aG ~~SER~~ 10-7-93 B098Y7

~~1~~,250ml ~~P~~:CLP;TAL Metals,Hg,Ti
~~1~~,250ml aGs:VOA CLP
~~1~~,250ml aG:Semi-VOA CLP
~~1~~,125ml G:Anions F,Cl,SO4 (EPA 300.0)
~~1~~,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1~~,125ml G:Cyanide CLP
~~1~~,125ml GW:Kerosene (8015M)
~~1~~,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

2) 1,250ml aGs PCB/Pest

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
~~1,250ml Gs:VOA CLP~~
~~1,250ml aG:Semi-VOA CLP~~
~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
~~1,125ml G:Cyanide CLP~~
~~1,125ml Gw:Kerosene (8015M)~~
~~1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79~~

3) SER 10-7-93

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
~~1,250ml Gs:VOA CLP~~
~~1,250ml aG:Semi-VOA CLP~~
~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
~~1,125ml G:Cyanide CLP~~
~~1,125ml Gw:Kerosene (8015M)~~
~~1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79~~

9413225.0853

[ ] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
Loren E. Rogers 10-8-93 1122	JG HOGAN	10-8-93 / 1122
JG HOGAN 10-8-93 1135	H. NARCISO TMA/NORCAL	10-11-93 8:00

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

Rec'd SATURDAY 10-9-93 OPENED 10/11/93

3-18-94
000072

CASE NARRATIVE

LABORATORY : TMA/ARLI

CASE : 10-014

CONTRACT ID : WESTINGHOUSE HANFORD COMPANY

SDG RECEIPT DATE : October 11, 1993

1.0 DESCRIPTION OF CASE :

Two soil samples were analyzed for TCL Organics - Volatiles, Semivolatiles, and Pesticide/PCBs according to the USEPA Contract Laboratory Program (CLP) Statement of Work for Organic Analysis, Revision OLM01.8. The Total Petroleum Hydrocarbons in the Kerosene range (K) were analyzed according to the SW-846 Method 8015M.

9417225.0814

2.0 SAMPLE LIST :

WESTINGHOUSE ID	LAB ID	ANALYSIS REQUESTED	MATRIX
B098Y7	A3-10-014-01A	V	SOIL
B098Y7	A3-10-014-01B	SV	SOIL
B098Y7 MS	A3-10-014-01C	SV	SOIL
B098Y7 MSD	A3-10-014-01D	SV	SOIL
B098Y7	A3-10-014-01H	K	SOIL
B098Y7 MS	A3-10-014-01I	K	SOIL
B098Y7 MSD	A3-10-014-01J	K	SOIL
B098Y7	A3-10-014-01K	P	SOIL
B098Y7 MS	A3-10-014-01L	P	SOIL
B098Y7 MSD	A3-10-014-01M	P	SOIL
B098Y9	A3-10-014-02A	V	SOIL
B098Y9 MS	A3-10-014-02B	V	SOIL
B098Y9 MSD	A3-10-014-02C	V	SOIL

3.0 COMMENTS :

3.1 SHIPPING AND DOCUMENTATION :

All of the samples were received intact and properly documented.

On October 23, 1993, the Westinghouse Hanford Company cancelled the analysis of samples B098Y7 and B098Y9, despite the fact that the Volatile samples had already been analyzed, and the samples were extracted for Semivolatiles, Pesticides, and Extractable Hydrocarbons. On November 3, 1993, TMA/ARLI, in accordance with ROD-93-0241, reinitiated the analyses and reporting of the aforementioned samples.

3-18-94
000073

3.2 ANALYSIS

3.2.1 VOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were analyzed by heated purge within the CLP SOW holding times.

All of the QC results were within the limits specified by the EPA CLP SOW.

TUNES :

All BFB tunes were injected directly into the GC/MS instrument.

3.2.2 SEMIVOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were extracted and analyzed within the contract required holding times. No TCL analytes were detected in the samples.

All of the QC results were within the limits specified by the EPA CLP SOW.

3.2.3 PESTICIDE/PCB ANALYSIS COMMENTS :

SEQUENCE NOTES :

The sequence was started on 11/02/93 and was analyzed according to the USEPA CLP SOW. The sequence was analyzed by a single injection into a dual column system.

During the analysis sequence, the Autosampler malfunctioned, and after the injection of the PIBLKs and the PEMs, the sequence was continued. The %RSD for all of the analytes were within the QC limits on both of the GC columns, with the exception of alpha- and delta-BHC on the DB-608 column, which were slightly above 20% but less than the 30% limit.

Several Aroclor standards were injected throughout the sequence in order to confirm the presence of Aroclors in the samples. Although the retention times for some peaks exceeded their retention time window, the identification of each Aroclor was based primarily on the pattern recognition for each peak in the chromatogram.

All of the other QC criteria were within the limits specified by the EPA CLP SOW.

The chromatograms are presented in the manner consistent with the capabilities of the Nelson 2700 Turbochrome Data System which normalizes the largest peak to scale.

LOW LEVEL SOIL :

The samples were extracted and analyzed within the contract required holding times.

The TCX surrogate recoveries on the DB-608 column for samples B098Y7MS and B098Y7MSD were slightly below the advisory QC limits. However, the TCX recoveries on the DB-1701 column were higher for all of the samples in comparison to the DB-608 column, due to the interference peaks that coeluted with TCX on the DB-1701 column, therefore yielding higher recoveries. The %D between the two GC columns, for TCX in the spiked and unspiked samples, were greater than the 25% limit. The DCB recoveries on the two GC columns were comparable for all of the samples.

All of the other QC results were within the limits specified by the USEPA CLP SOW.

3.2.4 TOTAL PETROLEUM HYDROCARBONS "KEROSENE RANGE" COMMENTS :

SEQUENCE NOTES :

The sequence was started on 12/01/93, with the injection of a continuing calibration, and was analyzed according to the SW-846 Method 8015M. The instrument calibration was performed on 11/18/93 with the injection of 5 different levels of the Kerosene standard. The %RSD for the initial calibration, and the %D for the continuing calibration were all within their respective QC limits as specified by the SW-846 Method 8015M. respectively.

SAMPLE NOTES :

LOW LEVEL SOIL :

The samples were extracted within the SW-846 holding time. However, the sample extracts were analyzed 10 days outside of the holding time due to laboratory miscommunication. The laboratory has taken the appropriate steps to ensure that this will not happen again. No Kerosene was detected in the samples.

Sample B098Y7 was spiked with Kerosene. The matrix spike recovery in B098Y7MS was 61%, and 59% in sample B098Y7MSD. A blank spike, KLCS1014S, was prepared and analyzed at the same time, and had a 70% recovery.

All of the QC results were within the limits specified by the SW-846 Method 8015M.

3-18-94

000075

We certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data in this hardcopy data package and in the computer-readable data submitted on diskette is authorized by the Laboratory Manager or his designee, as verified by the following signatures.

Nicole Roth 12/14/93
Nicole Roth
CLP Program Manager

Maureen Parrish 12/14/93
Maureen Parrish
Program Manager

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

GENERAL GC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E (circled)
PROJECT: 200 UP-2			DATA PACKAGE: B09847-TMA-628		
VALIDATOR: T. Stapp	LAB: TMA		DATE: 3-14-94		
CASE:			SDG:		

* ANALYSES PERFORMED

☐ 8010	☑ 8015 Nitrates	☐ 8020	☐ 8021	8140	8141
☐ 8150	☐ 8151	☐ WTPH-HCID	☐ WTPH-G	☐ WTPH-D	☐
☐	☐	☐	☐	☐	☐

SAMPLES/MATRIX: B09847- Soil

9411225.0859

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? Note (1) . (Yes) No N/A

Is a case narrative present? . . . . . (Yes) No N/A

Comments: (1) Performed by WHC.

2. HOLDING TIMES

Are sample holding times acceptable? . . . . . Yes (No) N/A

Comments: See HOLDING TIME Summary page B-1

GENERAL GC DATA VALIDATION CHECKLIST

3. INSTRUMENT CALIBRATION

3.1 INITIAL CALIBRATION

Was an initial calibration performed? . . . . . (Yes) No N/A

Are %RSD values for calibration or response factors acceptable? . . . . . (Yes) No N/A

Comments: _____

3.2 CONTINUING CALIBRATION

Was a continuing calibration check performed? . . . . . (Yes) No N/A

Are %D values for calibration or response factors acceptable? (Yes) No N/A

Comments: _____

4. BLANKS

Were laboratory blanks analyzed? . . . . . (Yes) No N/A

Are laboratory blank results acceptable? . . . . . (Yes) No N/A

Were field/trip blanks analyzed? . . . . Note ① . . . . . Yes No (N/A)

Are field/trip blank results acceptable? . . . . . Yes No (N/A)

Comments: ① Field QC samples were not identified in this Sample Set, but have been requested. Field QC will be evaluated in the final data Summary.

5. ACCURACY

Were surrogates analyzed? . . . . . Yes (No) N/A

Are surrogate recoveries acceptable? . . . NOTE ① . . . . Yes No (N/A)

Were MS/MSD samples analyzed? . . . . . (Yes) No N/A

Are MS/MSD recoveries acceptable? . . . . NOTE ② . . . . . Yes No (N/A)

Were LCS samples analyzed? . . . . . (Yes) (No) N/A ~~TS~~ 3-15-94

Are LCS recoveries acceptable? . . . . . NOTE ③ . . . . . Yes No (N/A)

9414225.0860

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GENERAL GC DATA VALIDATION CHECKLIST

Comments: ① Surrogate Compounds were not added to samples, blanks, or calib. Stnds. No qualification applied, see note ②.
② MS/MSD recoveries are 61% and 59% respectively and will be acceptable for data package accuracy requirements.
③ LCS recovery @ 70% which is similar to MS/MSD recoveries and qualification will not be applied. Control limits not provided by Lab.

6. PRECISION

Are MS/MSD sample RPD values acceptable? . . . NOTE ② . . . (Yes) No N/A
Are field duplicate RPD values acceptable? . . . NOTE ① . . . Yes No (N/A)
Are field split RPD values acceptable? . . . . . Yes No (N/A)

Comments: ① Field QC including Field duplicate and/or splits are not identified in this sample set, but it has been requested. Field QC will be evaluated in the final data Summary.
② Lab precision control limits not provided, however good agreement obtained @ 3% ~~RSD~~ RPD and no qualificatn will be applied.

7. COMPOUND IDENTIFICATION AND QUANTITATION

Is compound identification acceptable? . . . . . (Yes) No N/A
Is compound quantitation acceptable? . . . . . (Yes) No N/A

Comments:

8. REPORTED RESULTS AND DETECTION LIMITS

Are results reported for all requested analyses? . . . . . (Yes) No N/A
Are all results supported in the raw data? . . . . . (Yes) No N/A
Do results meet the CRQLs? . . . . . NOTE ① . . . . . Yes No (N/A)

Comments: CRQL values have not been provided for SW-846 analyses.

9417225.0861

HOLDING TIME SUMMARY

SDG: B098Y7-TMA-628	VALIDATOR: T. Stapp	DATE: 3-14-94	PAGE 1 OF 1
COMMENTS: 8015 Analysis			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B098Y7	8015m	10-7-93	10-14-93	12-01-93	≤14	55	J/UJ

INORGANIC DATA VALIDATION SUMMARY FOR DATA PACKAGE:
B098Y7-TMA-628 (923-E418 628MET.UP2)

MEMORANDUM

TO: 200 UP-2 Project QA Record March 18, 1994

FR: Thomas Stapp, Golder Associates Inc.

RE: INORGANIC DATA VALIDATION SUMMARY FOR DATA PACKAGE B098Y7-TMA-628 (923-E418 628MET.UP2)

INTRODUCTION

This memo presents the results of data validation on data package B098Y7-TMA-628 prepared by TMA laboratory. A list of samples validated along with the analyses reported and the methods of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSES
B098Y7	10/07/93	SOIL	SEE NOTE 1

Notes:

1. Indicates the samples were analyzed for CLP TAL metals, titanium, and cyanide.

Data validation was conducted in accordance with the WHC statement of work (WHC 1993a) and validation procedures (WHC 1993b). Attachments 1 through 5 provide the following information as indicated below:

Attachment 1. Glossary of Data Reporting Qualifiers
Attachment 2. Summary of Data Qualifications
Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
Attachment 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met, with the exception of the ICP serial dilution results as indicated under "Minor Deficiencies" below.

Accuracy. Goals for accuracy were met, with the exception of the matrix spike recoveries as indicated under "Minor Deficiencies" below.

Sample Result Verification. All sample results were supported in the raw data.

Detection Limits. Detection limit goals were met for all sample results.

Completeness. The data package was complete for all requested analyses. A total of one sample was validated in this data package with a total of 25 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent which meets the work plan completeness objective of 90 percent.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

The following minor deficiencies were identified during data validation which required qualification of data.

Holding Times

- The mercury analysis holding time exceeded the 28 day limit, therefore the mercury result for sample B098Y7 has been qualified as estimated (J).

Blanks

- Silver was detected in the continuing calibration blank, therefore the associated sample result less than five times the blank value has been qualified as undetected (U) as shown in Attachment 2.

Matrix Spike Recoveries

- Matrix spike recoveries for antimony, and manganese were unacceptable. Attachments 2 and 5 provide a summary of the samples affected, data qualification applied, and supporting documentation.

ICP Serial Dilution

- The zinc serial dilution percent difference exceeded the 10% limit for sample results greater than 50 times the IDL, therefore the result for sample B098Y7 has been qualified as estimated (J).

REFERENCES

WHC, 1993a, Validation of 200 UP-2 Data, Statement of Work, Analytical Laboratory Data Validation, Task Order S-94-18, December 14, 1993, Purchase Order M073750. Westinghouse Hanford Company, Richland, Washington.

WHC, 1993b, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993. Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF INORGANIC DATA REPORTING QUALIFIERS

B - Indicates the constituent was analyzed for and detected. The concentration reported is less than the contract required detection limit (CRDL) but greater than the instrument detection limit (IDL). The associated data should be considered usable for decision making purposes.

U - Indicates the constituent was analyzed for and not detected. The concentration reported is the sample detection limit corrected for aliquot size, dilution and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.

UJ - Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during data validation the concentration may not accurately reflect the sample detection limit. The associated data have been qualified as estimated but should be considered usable for decision making purposes.

BJ - Indicates the constituent was analyzed for and detected at a concentration less than the contract required detection limit (CRDL) but greater than the instrument detection limit (IDL). Due to a minor quality control deficiency identified during data validation the associated data have been qualified as estimated, but should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. Due to a minor quality control deficiency identified during data validation the associated data have been qualified as estimated, but should be considered usable for decision making purposes.

UR - Indicates the constituent was analyzed for and not detected. Due to a major quality control deficiency identified during data validation, the associated data have been qualified as unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. Due to a major quality control deficiency identified during data validation, the associated data have been qualified as unusable for decision making purposes.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: B098Y7-TMA-628	REVIEWER: T. STAPP	DATE: 3-07-94	PAGE 1 OF 1
COMMENTS: INORGANIC ANALYSIS			
COMPOUND/ANALYTE	QUALIFIER	SAMPLES AFFECTED	REASON
MERCURY	BJ	B098Y7	HOLDING TIME EXPIRED
ANTIMONY, MANGANESE	J	B098Y7	MATRIX SPIKE RECOVERY IS BELOW THE 75% LIMIT
ZINC	J	B098Y7	ICP SERIAL DILUTION PERCENT DIFFERENCE EXCEEDS 10%
SILVER	U	B098Y7	CONTAMINANT FOUND IN BLANK

ATTACHMENT 3

QUALIFIED DATA SUMMARY and ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: B098Y7-TMA-628

Parameter	Units	Samp# B098Y7	Q
		Date 10-7-93	
		Location ---	
		Depth ---	
		Type ---	
		Comments ---	
ALUMINUM	MG/KG	7350.000	
ANTIMONY	MG/KG	2.800	BJ
ARSENIC	MG/KG	8.600	
BARIUM	MG/KG	104.000	
BERYLLIUM	MG/KG	0.400	B
CADMIUM	MG/KG	0.260	U
CALCIUM	MG/KG	20400.000	
CHROMIUM	MG/KG	8.400	
COBALT	MG/KG	11.800	
COPPER	MG/KG	15.800	
IRON	MG/KG	22400.000	
LEAD	MG/KG	7.500	
MAGNESIUM	MG/KG	6990.000	
MANGANESE	MG/KG	415.000	J
MERCURY	MG/KG	0.060	BJ
NICKEL	MG/KG	8.400	
POTASSIUM	MG/KG	1200.000	
SELENIUM	MG/KG	0.560	U
SILVER	MG/KG	0.960	U
SODIUM	MG/KG	223.000	B
THALLIUM	MG/KG	0.320	U
VANADIUM	MG/KG	55.200	
ZINC	MG/KG	46.600	J
CYANIDE	MG/KG	0.530	U
TITANIUM	MG/KG	1780.000	

Verified [signature] 3-18-94

800-

SAMPLE NUMBER

INORGANIC ANALYSIS DATA SHEET

B098Y7

Lab Name SKINNER & SHERMAN LABS Contract 68-02-0039

Lab Code SKINER Case No. N3-10-030SAS No. SDG No. B098Y7

Matrix (soil/water) SOIL Lab Sample ID S210097-01 S

Level (low/med) LOW Date Received 10/16/93

% Solids 93.2

Concentration Units (ug/L or mg/L dry weight) MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	7350			P	G
7440-36-0	Antimony	2.8	~~B~~	N	P	BJ
7440-38-2	Arsenic	8.6			P	
7440-39-3	Barium	104			P	
7440-41-7	Beryllium	0.40	B		P	
7440-43-9	Cadmium	0.26	U		P	
7440-70-2	Calcium	20400			P	
7440-47-3	Chromium	8.4			P	
7440-48-4	Cobalt	11.8			P	
7440-50-8	Copper	15.8			P	
7439-89-6	Iron	22400			P	
7439-92-1	Lead	7.5			P	
7439-95-4	Magnesium	6990			P	
7439-96-5	Manganese	415	✓	N	P	J
7439-97-6	Mercury	0.06	~~B~~		CV	BJ
7440-02-0	Nickel	8.4			P	
7440-09-7	Potassium	1200			P	
7782-49-2	Selenium	0.56	U		P	
7440-22-4	Silver	0.96	~~B~~		P	U
7440-23-5	Sodium	233	B		P	
7440-28-0	Thallium	0.32	U		P	
7440-62-2	Vanadium	55.2			P	
7440-66-6	Zinc	46.6	✓	E	P	J
	Cyanide	0.53	U		CA	
7440-32-6	Titanium	1780	✓		P	~~J~~

3-18-94

Verified 3-8-94

Color Before BROWN Clarity Before: Texture FINE

Color After BROWN Clarity After: Artifacts:

Comments:

009

~~3~~-18-94 2

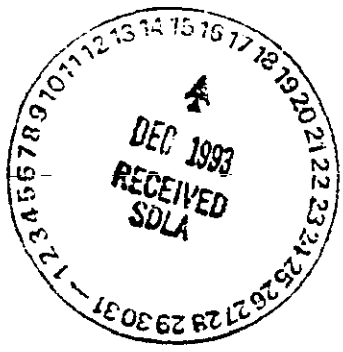
9417225.0872

ATTACHMENT 4

LABORATORY NARRATIVE and CHAIN-OF-CUSTODY DOCUMENTATION

TMA
Thermo Analytical Inc.

Skinner & Sherman Labs., Inc.
300 Second Avenue
Post Office Box 521
Waltham, MA 02254-0521
(617) 890-7200
FAX (617) 890-3883



November 23, 1993

TMA/NORCAL
2030 Wright Avenue
Richmond, CA 94804
Attention: Dan Stuermer

Quality Control Narrative

Scope
One (1) soil sample was submitted to TMA/Skinner & Sherman Laboratories, Inc. on October 12, 1993 from TMA/Norcal. The sample was analyzed for the USEPA CLP Target Analyte List metals, titanium and cyanide. The analysis were performed under TMA/Skinner and Sherman work order S310097.

Methodology
The sample was prepared, analyzed and reported in accordance with the USEPA Contract Laboratory Program Statement of Work ILM02.

Discussion
All quality control requirements were met for the samples with the following exceptions:

The matrix spike recovery for antimony and manganese exceeded the control limit requirements.

The ICP serial dilution for zinc exceeded the control limit requirements.

Please feel free to call if there are any questions concerning this package.

Respectfully submitted,

TMA/SKINNER & SHERMAN LABORATORIES, INC.

Steven R. Provencal
Lead Chemist

N3-0036

XS 3-13-14 0000026

HANFORD ANALYTICAL SERVICES MANAGEMENT

RECORD OF DISPOSITION

ROD-93-0241
Record of Disposition No.

DATE: November 4, 1993 | LABORATORY: TMA

PROJECT TITLE/NO.: 200-UP-2 / 93-263 | NCR NO.: N/A

SAMPLE IDENTIFICATION NUMBERS: B098Y7, B098Y9

DESCRIPTION OF EVENT:

On October 25th, HASM received direction regarding samples B098Y7 and B098Y9 taken 4-6' from the surface. The entire suite of analyses listed on SAF 93-263 were requested for sample B098Y7 and VOA's were requested for the trip blank (sample B098Y9). HASM was informed that samples taken from the 4-6' depth should only have radiochemistry analyses requested since they are apart of a sitewide background study. TMA was subsequently informed to cancel all non-radchem analyses for sample B098Y7 and cancel the VOA analysis for B098Y9. On November 3rd, HASM was informed that all of the requested analyses on the Chain of Custody should be performed for samples B098Y7 and B098Y9. Due to the delay, two analyses (CN and Hg) exceeded holding time limits.

DISPOSITION OF SAMPLES:

With the customer's consent, TMA was instructed to proceed with all the analyses listed on the Chain of Custody, including CN and Hg which exceeded holding times. The customer understands that data obtained for CN and Hg may be for information only.

APPROVAL SIGNATURES:

Jon W. Ball — 11-4-93
HASM Project Coordinator (Print/Sign Name) — Date

Mark Wasemiller — 11/12/93
Technical Representative (Print/Sign Name) — Date

N/A
Quality Assurance (Print/Sign Name) — Date

012

~~0000027~~

-5-3/18/94

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 10-7-93

Ice Chest No.: SNL-54B

Field Logbook No.: EFL-1091

Bill of Lading/Airbill No.:

Offsite Property No.:

Method of Shipment: OVERNIGHT AIR SERVICE

Shipped to: TMA

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) NONE NOTED

Sample Identification

1) aG SER 10-7-93 B098Y7

1,250ml aG: ~~P~~:CLP;TAL Metals,Hg,Ti
~~1~~,250ml aGs:VOA CLP
~~1~~,250ml aG:Semi-VOA CLP
~~1~~,125ml G:Anions F,Cl,SO4 (EPA 300.0)
~~1~~,125ml P/G:Anions NO2,NO3 (EPA 353.2)
~~1~~,125ml G:Cyanide CLP
~~1~~,125ml Gw:Kerosene (8015M)
~~1~~,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

1,250ml aGs PCB/Pest

~~1,250ml~~ P:CLP;TAL Metals,Hg,Ti
1,250ml ~~Gs:VOA CLP~~
1,250ml aG:Semi-VOA CLP
1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
1,125ml G:Cyanide CLP
1,125ml Gw:Kerosene (8015M)
~~1~~,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

3) SER 10-7-93

~~1,250ml~~ P:CLP;TAL Metals,Hg,Ti
1,250ml ~~Gs:VOA CLP~~
1,250ml aG:Semi-VOA CLP
1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
1,125ml G:Cyanide CLP
1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

[] Field Transfer of Custody

Chain of Possession (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
10-8-93 Loren E. Rogers 1122	J6 HOGAN / J7 Hogan	10-8-93 / 1122
J6 HOGAN / J7 Hogan 10-8-93 1135	H. Narcisa / TMA/NORCAL	10-11-93 8:00
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

Received SATURDAY 10-9-93 OPENED 10/11/93

013

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E (circled)
PROJECT: 200 UP-2			DATA PACKAGE: B098Y7-TMA-628		
VALIDATOR: T. Stapp		LAB: TMA		DATE: 3-7-94	
CASE: N3-10-030			SDG:		

ANALYSES PERFORMED					
☑ CLP/ICP	☐ CLP/GFAA	☑ CLP/Hg	☑ CLP/Cyanide	☐	☐
☐ SW-846/ICP	☐ SW-846/GFAA	☐ SW-846/Hg	☐ SW-846 Cyanide	☐	☐

SAMPLES/MATRIX B098Y7 / SOIL

9411225.0878

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? . . . . . (Yes) No N/A

Is a case narrative present? . . . . . (Yes) No N/A

Comments: Performed by WHC

2. HOLDING TIMES

Are sample holding times acceptable? . . . . . Yes (No) N/A

Comments: Hg analysis exceeds holding time @ 31 days. Associated sample results qualified J/UJ.

015

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

Were initial calibrations performed on all instruments? . . .	(Yes)	No	N/A
Are initial calibrations acceptable?	(Yes)	No	N/A
Are ICP interference checks acceptable?	(Yes)	No	N/A
Were ICV and CCV checks performed on all instruments?	(Yes)	No	N/A
Are ICV and CCV checks acceptable?	(Yes)	No	N/A

Comments: _____

4. BLANKS

Were ICB and CCB checks performed for all applicable analyses?	(Yes)	No	N/A
Are ICB and CCB results acceptable? . . . See note ② . . .	Yes	(No)	N/A
Were preparation blanks analyzed?	(Yes)	No	N/A
Are preparation blank results acceptable?	(Yes)	No	N/A
Were field/trip blanks analyzed? . See note ①	Yes	No	(N/A)
Are field/trip blank results acceptable?	Yes	No	(N/A)

Comments: ① Field QC including Field/Trip Blanks are not identified with this sample set, but have been requested. Field QC will be evaluated in the final data Summary.
② See blank Summary page B-3.

5. ACCURACY

Were spike samples analyzed?	(Yes)	No	N/A
Are spike sample recoveries acceptable? . See Summary Sheet	Yes	(No)	N/A
Were laboratory control samples (LCS) analyzed?	(Yes)	No	N/A
Are LCS recoveries acceptable?	(Yes)	No	N/A

Comments: _____

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

6. PRECISION

Were laboratory duplicates analyzed?	(Yes)	No	N/A
Are laboratory duplicate samples RPD values acceptable?	(Yes)	No	N/A
Were ICP serial dilution samples analyzed?	(Yes)	No	N/A
Are ICP serial dilution %D values acceptable? See Precision Summary	Yes	(No)	N/A
Are field duplicate RPD values acceptable?	Yes	No	(N/A)
Are field split RPD values acceptable? See note ①	Yes	No	(N/A)

Comments: ① Field QC including duplicates and/or splits were not identified with this sample set, but have been requested. Field QC will be evaluated in the final data Summary.

7. FURNACE AA QUALITY CONTROL

Were duplicate injections performed as required?	Yes	No	(N/A)
Are duplicate injection %RSD values acceptable?	Yes	No	(N/A)
Were analytical spikes performed as required?	Yes	No	(N/A)
Are analytical spike recoveries acceptable?	Yes	No	(N/A)
Was MSA performed as required?	Yes	No	(N/A)
Are MSA results acceptable?	Yes	No	(N/A)

Comments: Furnace analysis not performed.

8. REPORTED RESULTS AND DETECTION LIMITS

Are results reported for all requested analyses?	(Yes)	No	N/A
Are all results supported in the raw data?	(Yes)	No	N/A
Are results calculated properly?	(Yes)	No	N/A
Do results meet the CRDLs?	(Yes)	No	N/A

Comments:

HOLDING TIME SUMMARY

SDG: B098Y7-TMA-628	VALIDATOR: T. Stapp	DATE: 3-7-94	PAGE 1 OF 1
COMMENTS: INORGANIC ANALYSES			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B098Y7	ICP	10-7-93	11-06-93	11-9-93	30	33	NONE
B098Y7	CLP/Hg	10-7-93	11-05-93	11-07-93	29	31	J/UJ
B098Y7	CLP/CN	10-7-93	10-19-93	10-21-93	12	14	NONE
B098Y7	ICP	10-7-93	11-06-93	11-19-93	30	43	NONE

B-1

0018

BLANK AND SAMPLE DATA SUMMARY

SDG: B098Y7-TMA-628	VALIDATOR: T. Stapp	DATE: 3-18-94	PAGE 1 OF 1

COMMENTS: INORGANIC ANALYSES

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
CCB2	Ag	4.8			ug/L	24		B098Y7	U

B098Y7-TMA-628

ACCURACY DATA SUMMARY

SDG:	VALIDATOR: T. Staff	DATE: 3-18-94	PAGE 1 OF 1
COMMENTS:			

SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B098Y7 MS	Antimony	46.2	B098Y7	J
"	Manganese	48.4	B098Y7	J

PRECISION DATA SUMMARY

B098Y7-TMA-628

SDG: ↓	VALIDATOR: T. Stapp	DATE: 3-8-94	PAGE 1 OF 1
COMMENTS: INORGANIC ANALYSES / Metals, Cyanide			

COMPOUND	SAMPLE ID:	SAMPLE ID:	RPD %D	SAMPLES AFFECTED	QUALIFIER
Zinc	ICP Serial Dil-		26.1	B098Y7	J

PESTICIDE/PCB DATA VALIDATION SUMMARY FOR DATA PACKAGE:
B098Y7-TMA-628 (923-E418 628PES.UP2)

MEMORANDUM

TO: 200 UP-2 Project QA Record March 14, 1994

FR: Thomas Stapp, Golder Associates Inc.

RE: PESTICIDE/PCB DATA VALIDATION SUMMARY FOR DATA PACKAGE B098Y7-TMA-628 (923-E418 628PES.UP2)

INTRODUCTION

This memo presents the results of data validation on data package B098Y7-TMA-628 prepared by TMA laboratory. A list of samples validated along with the analyses reported and the methods of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSES
B098Y7	10/07/93	SOIL	SEE NOTE 1

Notes:

1. Indicates the samples were analyzed for target compound list (TCL) pesticides and arochlor PCB's.

Data validation was conducted in accordance with the WHC statement of work (WHC 1993a) and validation procedures (WHC 1993b). Attachments 1 through 5 provide the following information as indicated below:

Attachment 1. Glossary of Data Reporting Qualifiers
Attachment 2. Summary of Data Qualifications
Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
Attachment 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data.

Detection Limits. Detection limit goals were met.

Completeness. The data package was complete for all requested analyses. A total of one (1) sample was validated in this data package with a total of twenty-eight (28) determinations reported, all of which were deemed valid. This results in a completeness of 100 percent which meets the work plan completeness objective of 90 percent.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

No minor deficiencies were identified during data validation which required qualification of data.

REFERENCES

WHC, 1993a, Validation of 200 UP-2 Data, Statement of Work, Analytical Laboratory Data Validation, Task Order S-94-18, December 14, 1993, Purchase Order M073750. Westinghouse Hanford Company, Richland, Washington.

WHC, 1993b, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993. Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the constituent was analyzed for and detected in the associated laboratory blank. This qualifier is applied by the laboratory. During the process of data validation this qualifier may be replaced by other appropriate qualifiers as defined by the validation procedures. The associated data should be considered usable for decision making purposes.

U - Indicates the constituent was analyzed for and not detected. The concentration reported is the sample quantitation limit corrected for aliquot size, dilution and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.

UJ - Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during data validation the concentration reported may not accurately reflect the sample quantitation limit. The associated data should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. This qualifier may be applied by the laboratory to indicate a concentration which is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). During data validation this qualifier may be applied to indicate a minor quality control deficiency. However in either case, the associated data should be considered usable for decision making purposes.

NJ - Indicates presumptive evidence of a constituent at an estimated value. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

N - Indicates presumptive evidence of a constituent. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

JN - Indicates a tentatively identified compound (TIC) whose concentration and identification have been determined to be valid as a result of data validation. The associated data should be considered usable for decision making purposes.

UR - Indicates the constituent was analyzed for and not detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

ATTACHMENT 2

AS QUALIFIED DATA SUMMARY

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: B098Y7-TMA-628	REVIEWER: T. STAPP	DATE: 3-11-94	PAGE 1 OF 1
COMMENTS: PESTICIDE/PCB			
COMPOUND/ANALYTE	QUALIFIER	SAMPLES AFFECTED	REASON
NO QUALIFICATIONS REQUIRED			

ATTACHMENT 3

QUALIFIED DATA SUMMARY and ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: 8098Y7-TMA-628

Parameter	Units	Samp# 8098Y7	Q
		Date 10-7-93	
		Location ---	
		Depth ---	
		Type ---	
		Comments ---	
ALPHA-BHC	UG/KG	1.800	U
BETA-BHC	UG/KG	1.800	U
DELTA-BHC	UG/KG	1.800	U
GAMMA-BHC (LINDANE)	UG/KG	1.800	U
HEPTACHLOR	UG/KG	1.800	U
ALDRIN	UG/KG	1.800	U
HEPTACHLOR EPOXIDE	UG/KG	1.800	U
ENDOSULFAN I	UG/KG	1.800	U
DIELDRIN	UG/KG	3.500	U
4,4'-DDE	UG/KG	3.500	U
ENDRIN	UG/KG	3.500	U
ENDOSULFAN II	UG/KG	3.500	U
4,4'-DDD	UG/KG	3.500	U
ENDOSULFAN SULFATE	UG/KG	3.500	U
4,4'-DDT	UG/KG	3.500	U
METHOXYCHLOR	UG/KG	18.000	U
ENDRIN KETONE	UG/KG	3.500	U
ENDRIN ALDEHYDE	UG/KG	3.500	U
ALPHA-CHLORDANE	UG/KG	1.800	U
GAMMA-CHLORDANE	UG/KG	1.800	U
TOXAPHENE	UG/KG	180.000	U
AROCLOR-1016	UG/KG	35.000	U
AROCLOR-1221	UG/KG	72.000	U
AROCLOR-1232	UG/KG	35.000	U
AROCLOR-1242	UG/KG	35.000	U
AROCLOR-1248	UG/KG	35.000	U
AROCLOR-1254	UG/KG	35.000	U
AROCLOR-1260	UG/KG	35.000	U

Verified 3-14-94

3-11-94 000083

1D

EPA SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

B098Y7

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 10014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A310014-01K

Sample wt/vol: 30.4 (g/mL) G Lab File ID:

% Moisture: 8 decanted: (Y/N) N Date Received: 10/11/93

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/13/93

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 11/03/93

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 9.6 Sulfur Cleanup: (Y/N) N

94/6/25.009

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.8	U
319-85-7	beta-BHC	1.8	U
319-86-8	delta-BHC	1.8	U
58-89-9	gamma-BHC (Lindane)	1.8	U
76-44-8	Heptachlor	1.8	U
309-00-2	Aldrin	1.8	U
1024-57-3	Heptachlor epoxide	1.8	U
959-98-8	Endosulfan I	1.8	U
60-57-1	Dieldrin	3.5	U
72-55-9	4,4'-DDE	3.5	U
72-20-8	Endrin	3.5	U
33213-65-9	Endosulfan II	3.5	U
72-54-8	4,4'-DDD	3.5	U
1031-07-8	Endosulfan sulfate	3.5	U
50-29-3	4,4'-DDT	3.5	U
72-43-5	Methoxychlor	18	U
53494-70-5	Endrin ketone	3.5	U
7421-36-3	Endrin aldehyde	3.5	U
5103-71-9	alpha-Chlordane	1.8	U
5103-74-2	gamma-Chlordane	1.8	U
8001-35-2	Toxaphene	180	U
12674-11-2	Aroclor-1016	35	U
11104-28-2	Aroclor-1221	72	U
11141-16-5	Aroclor-1232	35	U
53469-21-9	Aroclor-1242	35	U
12672-29-6	Aroclor-1248	35	U
11097-69-1	Aroclor-1254	35	U
11096-82-5	Aroclor-1260	35	U

Verified 3-11-94

ATTACHMENT 4

LABORATORY NARRATIVE and CHAIN-OF-CUSTODY DOCUMENTATION

D0004824

3-18-94

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator L E ROGERS

Company Contact L E ROGERS

Telephone 376-7690

Project Designation/Sampling Locations 200-UP-2

Collection Date 10-7-93

Ice Chest No. SNL-54B

Field Logbook No. EFL-1091

Bill of Lading/Airbill No.

Offsite Property No.

Method of Shipment OVERNIGHT AIR SERVICE

Shipped to TMA

Possible Sample Hazards/Remarks Keep samples at 4C (SOIL) NONE NOTED

Sample Identification

1) B098Y7 10-7-93

1,250ml ~~P~~aG:CLP;TAL Metals,Hg,Ti
1,250ml aGs:VOA CLP
1,250ml aG:Semi-VOA CLP
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1,250ml aGs PCB/Rest

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
~~1,250ml Gs:VOA CLP~~
~~1,250ml aG:Semi-VOA CLP~~
~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
~~1,125ml G:Cyanide CLP~~
~~1,125ml Gw:Kerosene (8015M)~~
~~1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79~~

3) SER 10-7-93

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
~~1,250ml Gs:VOA CLP~~
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~~1,125ml Gw:Kerosene (8015M)~~
~~1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79~~

[] Field Transfer of Custody

Chain of Possession (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
Lorene E. Rogers 10-8-93 1122	J G Hogan	10-8-93 / 1122
J G Hogan 10-8-93 1135	H. Narciso TMA/NORCAL	10-11-93 8:00

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

Recd Saturday 10-9-92 CTENED 10/11/93

011

N3:2030

~~X~~ 3-15 0C000~~2G~~

HANFORD ANALYTICAL SERVICES MANAGEMENT

RECORD OF DISPOSITION

ROD-93-0241
Record of Disposition No.

DATE: November 4, 1993

LABORATORY: TMA

PROJECT TITLE/NO.: 200-UP-2 / 93-263

NCR NO.: N/A

SAMPLE IDENTIFICATION NUMBERS: B098Y7, B098Y9

DESCRIPTION OF EVENT:

On October 25th, HASM received direction regarding samples B098Y7 and B098Y9 taken 4-6' from the surface. The entire suite of analyses listed on SAF 93-263 were requested for sample B098Y7 and VOA's were requested for the trip blank (sample B098Y9). HASM was informed that samples taken from the 4-6' depth should only have radiochemistry analyses requested since they are apart of a sitewide background study. TMA was subsequently informed to cancel all non-radchem analyses for sample B098Y7 and cancel the VOA analysis for B098Y9. On November 3rd, HASM was informed that all of the requested analyses on the Chain of Custody should be performed for samples B098Y7 and B098Y9. Due to the delay, two analyses (CN and Hg) exceeded holding time limits.

DISPOSITION OF SAMPLES:

With the customer's consent, TMA was instructed to proceed with all the analyses listed on the Chain of Custody, including CN and Hg which exceeded holding times. The customer understands that data obtained for CN and Hg may be for information only.

APPROVAL SIGNATURES:

Jon W. Ball — 11-4-93
HASM Project Coordinator (Print/Sign Name) — Date

Mark Wasemiller — 11/2/93
Technical Representative (Print/Sign Name) — Date

N/A
Quality Assurance (Print/Sign Name) — Date

CASE NARRATIVE

LABORATORY : TMA/ARLI

CASE : 10-014

CONTRACT ID : WESTINGHOUSE HANFORD COMPANY

SDG RECEIPT DATE : October 11, 1993

1.0 DESCRIPTION OF CASE :

Two soil samples were analyzed for TCL Organics - Volatiles, Semivolatiles, and Pesticide/PCBs according to the USEPA Contract Laboratory Program (CLP) Statement of Work for Organic Analysis, Revision OLM01.8. The Total Petroleum Hydrocarbons in the Kerosene range (K) were analyzed according to the SW-846 Method 8015M.

2.0 SAMPLE LIST :

WESTINGHOUSE ID	LAB ID	ANALYSIS REQUESTED	MATRIX
B098Y7	A3-10-014-01A	V	SOIL
B098Y7	A3-10-014-01B	SV	SOIL
B098Y7 MS	A3-10-014-01C	SV	SOIL
B098Y7 MSD	A3-10-014-01D	SV	SOIL
B098Y7	A3-10-014-01H	K	SOIL
B098Y7 MS	A3-10-014-01I	K	SOIL
B098Y7 MSD	A3-10-014-01J	K	SOIL
B098Y7	A3-10-014-01K	P	SOIL
B098Y7 MS	A3-10-014-01L	P	SOIL
B098Y7 MSD	A3-10-014-01M	P	SOIL
B098Y9	A3-10-014-02A	V	SOIL
B098Y9 MS	A3-10-014-02B	V	SOIL
B098Y9 MSD	A3-10-014-02C	V	SOIL

3.0 COMMENTS :

3.1 SHIPPING AND DOCUMENTATION :

All of the samples were received intact and properly documented.

On October 23, 1993, the Westinghouse Hanford Company cancelled the analysis of samples B098Y7 and B098Y9, despite the fact that the Volatile samples had already been analyzed, and the samples were extracted for Semivolatiles, Pesticides, and Extractable Hydrocarbons. On November 3, 1993, TMA/ARLI, in accordance with ROD-93-0241, reinitiated the analyses and reporting of the aforementioned samples.

3-18-94
000073

3.2 ANALYSIS

3.2.1 VOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were analyzed by heated purge within the CLP SOW holding times.

All of the QC results were within the limits specified by the EPA CLP SOW.

TUNES :

All BFB tunes were injected directly into the GC/MS instrument.

3.2.2 SEMIVOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were extracted and analyzed within the contract required holding times. No TCL analytes were detected in the samples.

All of the QC results were within the limits specified by the EPA CLP SOW.

3.2.3 PESTICIDE/PCB ANALYSIS COMMENTS :

SEQUENCE NOTES :

The sequence was started on 11/02/93 and was analyzed according to the USEPA CLP SOW. The sequence was analyzed by a single injection into a dual column system.

During the analysis sequence, the Autosampler malfunctioned, and after the injection of the PIBLKs and the PEMs, the sequence was continued. The %RSD for all of the analytes were within the QC limits on both of the GC columns, with the exception of alpha- and delta-BHC on the DB-608 column, which were slightly above 20% but less than the 30% limit.

Several Aroclor standards were injected throughout the sequence in order to confirm the presence of Aroclors in the samples. Although the retention times for some peaks exceeded their retention time window, the identification of each Aroclor was based primarily on the pattern recognition for each peak in the chromatogram.

All of the other QC criteria were within the limits specified by the EPA CLP SOW.

The chromatograms are presented in the manner consistent with the capabilities of the Nelson 2700 Turbochrome Data System which normalizes the largest peak to scale.

LOW LEVEL SOIL :

The samples were extracted and analyzed within the contract required holding times.

The TCX surrogate recoveries on the DB-608 column for samples B098Y7MS and B098Y7MSD were slightly below the advisory QC limits. However, the TCX recoveries on the DB-1701 column were higher for all of the samples in comparison to the DB-608 column, due to the interference peaks that coeluted with TCX on the DB-1701 column, therefore yielding higher recoveries. The %D between the two GC columns, for TCX in the spiked and unspiked samples, were greater than the 25% limit. The DCB recoveries on the two GC columns were comparable for all of the samples.

All of the other QC results were within the limits specified by the USEPA CLP SOW.

3.2.4 TOTAL PETROLEUM HYDROCARBONS "KEROSENE RANGE" COMMENTS :

SEQUENCE NOTES :

The sequence was started on 12/01/93, with the injection of a continuing calibration, and was analyzed according to the SW-846 Method 8015M. The instrument calibration was performed on 11/18/93 with the injection of 5 different levels of the Kerosene standard. The %RSD for the initial calibration, and the %D for the continuing calibration were all within their respective QC limits as specified by the SW-846 Method 8015M. respectively.

SAMPLE NOTES :

LOW LEVEL SOIL :

The samples were extracted within the SW-846 holding time. However, the sample extracts were analyzed 10 days outside of the holding time due to laboratory miscommunication. The laboratory has taken the appropriate steps to ensure that this will not happen again. No Kerosene was detected in the samples.

Sample B098Y7 was spiked with Kerosene. The matrix spike recovery in B098Y7MS was 61%, and 59% in sample B098Y7MSD. A blank spike, KLCS1014S, was prepared and analyzed at the same time, and had a 70% recovery.

All of the QC results were within the limits specified by the SW-846 Method 8015M.

3-18-94
000075

We certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data in this hardcopy data package and in the computer-readable data submitted on diskette is authorized by the Laboratory Manager or his designee, as verified by the following signatures.

Nicole Roth 12/14/93
Nicole Roth
CLP Program Manager

Maureen Parrish 12/14/93
Maureen Parrish
Program Manager

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

PESTICIDE/PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E (circled)
PROJECT: 200 UP-2			DATA PACKAGE: B09847-TMA-628		
VALIDATOR:		LAB: TMA		DATE: 3-9-94	
CASE: 10-014			SDG:		
ANALYSES PERFORMED					
☑ CLP3/90	☐ SW-846 8080	☐ SW-846 8081	☐	☐	☐
SAMPLES/MATRIX B09847 / SOIL					

9413225.0006

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? Note ① . . . (Yes) No N/A

Is a case narrative present? . . . . . Yes No N/A

Comments: ① Performed by WHC

2. HOLDING TIMES

Are sample holding times acceptable? . . . . . (Yes) No N/A

Comments: See Form B-1.

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

3.1 INSTRUMENT PERFORMANCE (METHOD 8080 AND 8081)

Are DDT retention times acceptable . . . . . Yes No (N/A)

Are calibration standard retention times acceptable? . . . . . Yes No (N/A)

Are DDT and endrin breakdowns acceptable? . . . . . Yes No (N/A)

018

PESTICIDE/PCB DATA VALIDATION CHECKLIST

Are DBC retention times acceptable? . . . . . Yes No (N/A)

Is the GC/MS tuning/performance check acceptable? . . . . . Yes No (N/A)

Comments:_____

3.2 CALIBRATIONS (METHOD 8080 AND 8081)

Are EVAL standard calibration factors and %RSD values acceptable? . . . . . Yes No (N/A)

Are quantitation column calibration factor %RSD values acceptable? . . . . . Yes No (N/A)

Were the analytical sequence requirements met? . . . . . Yes No (N/A)

Are continuing calibration %D values acceptable? . . . . . Yes No (N/A)

Comments:_____

3.3 INSTRUMENT PERFORMANCE AND INITIAL CALIBRATION (3/90 SOW)

Was the initial calibration sequence performed? . . . . . (Yes) No N/A

Was the resolution acceptable in the resolution check mix? . . . . (Yes) No N/A

Is resolution acceptable in the PEM, INDA and INDB? . . . . . (Yes) No N/A

Are DDT and Endrin breakdowns acceptable? . . . . . (Yes) No N/A

Are retention times in PEMs and calibration mixes acceptable? . (Yes) No N/A

Are RPD values in the PEMs acceptable? . . . . . (Yes) No N/A

Are %RSD values acceptable? . . . . . (Yes) No N/A

Comments:_____

3.4 CALIBRATION VERIFICATION (3/90 SOW)

Were the analytical sequence requirements met? . . . . . (Yes) No N/A

Is resolution acceptable in the PEMs? . . . . . (Yes) No N/A

Are initial calibrations acceptable? . . . . . (Yes) No N/A

019

PESTICIDE/PCB DATA VALIDATION CHECKLIST

Are retention times acceptable in the PEMs, INDA and INDB mixes? . . . . . (Yes) No N/A
Are RPD values in the PEMs acceptable? . . . . . (Yes) No N/A
Are the DDT and endrin breakdowns acceptable? . . . . . (Yes) No N/A
Was GPC cleanup performed? . . . . . (Yes) No N/A
Is the GPC calibration check acceptable? . . . . . (Yes) No N/A
Was Florisil cleanup performed? . . . . . (Yes) No N/A
Is the Florisil performance check acceptable? . . . . . (Yes) No N/A

Comments: _____

9417225.0905

4. BLANKS

Were laboratory blanks analyzed? . . . . . (Yes) No N/A
Are laboratory blank results acceptable? See note ① . . . . Yes (No) N/A
Were field/trip blanks analyzed? See note ② . . . . . Yes No (N/A)
Are field/trip blank results acceptable? . . . . . Yes No (N/A)

Comments: ① Methoxychlor in method blank. No qualification since sample results are non-detect. ~~See MB Summary~~ Sheet. TS 3-18-9
② QC field samples not identified with this sample set but have been requested. Field QC data will be evaluated in the final data Summary.

5. ACCURACY

Were surrogates analyzed? . . . . . (Yes) No N/A
Are surrogate recoveries acceptable? . . . . . (Yes) No N/A
Were MS/MSD samples analyzed? . . . . . (Yes) No N/A
Are MS/MSD results acceptable? . . . . . (Yes) No N/A
Were LCS samples analyzed? See note ① . . . . . Yes (No) N/A
Are LCS results acceptable? . . . . . Yes No (N/A)

Comments: ① LCS analysis not required when MS/MSD results are present.

020

PESTICIDE/PCB DATA VALIDATION CHECKLIST

6. PRECISION

Are MS/MSD RPD values acceptable? . . . . . (Yes) No N/A

Are laboratory duplicate results acceptable? See Note ① . . Yes No (N/A)

Are field duplicate RPD values acceptable? See note ② . . Yes No (N/A)

Are field split RPD values acceptable? . . . . . Yes No (N/A)

Comments: ① Laboratory duplicate analysis not required since MS/MSD analysis is present.

② Field QC samples not identified with this sample set, but have been requested. Field QC will be evaluated in the final data Summary.

7. SYSTEM PERFORMANCE

Is chromatographic performance acceptable? . . . . . (Yes) No N/A

Are positive results resolved acceptably? . Note ① . . . . . Yes No (N/A)

Comments: ① All sample results are non-detect.

8. COMPOUND IDENTIFICATION AND QUANTITATION

Is compound identification acceptable? . . . . . (Yes) No N/A

Is compound quantitation acceptable? . . . . . (Yes) No N/A

Comments:

9. REPORTED RESULTS AND QUANTITATION LIMITS

Are results reported for all requested analyses? . . . . . (Yes) No N/A

Are all results supported in the raw data? . . . . . (Yes) No N/A

Do results meet the CRQLs? . . . . . (Yes) No N/A

Comments:

9417225.0906

0021

HOLDING TIME SUMMARY

B098Y7-TMA-628

SDG:	VALIDATOR: T. Stapp	DATE: 3-9-94	PAGE 1 OF 1
COMMENTS:	PESTICIDE / PCB's / CLP SOW (3/90).		

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B098Y7	Pesticide	10-7-93	10-13-93	11-3-93	≤14	≤40	NONE

SEMIVOLATILE ORGANIC DATA VALIDATION SUMMARY FOR DATA PACKAGE:
B098Y7-TMA-628 (923-E418 628SEMI.UP2)

MEMORANDUM

TO: 200 UP-2 Project QA Record April 21, 1994

FR: Thomas Stapp, Golder Associates Inc.

RE: SEMIVOLATILE DATA VALIDATION SUMMARY FOR DATA PACKAGE B098Y7-TMA-628 (923-E418 628SEMI.UP2)

INTRODUCTION

This memo presents the results of data validation on data package B098Y7-TMA-628 prepared by TMA laboratory. A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSES
B098Y7	10/07/93	SOIL	SEE NOTE 1

Notes:

1. Indicates the samples were analyzed for target compound list (TCL) semivolatile organics.

Data validation was conducted in accordance with the WHC statement of work (WHC 1993a) and validation procedures (WHC 1993b). Attachments 1 through 5 provide the following information as indicated below:

Attachment 1. Glossary of Data Reporting Qualifiers
Attachment 2. Summary of Data Qualifications
Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
Attachment 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

This section presents a summary of the data quality in terms of the referenced validation criteria.

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data.

Detection Limits. Detection limit goals were met.

Completeness. The data package was complete for all requested analyses. A total of one (1) sample was validated in this data package with a total of sixty-four (64) determinations reported, all of which were deemed valid. This results in a completeness of 100 percent which meets normal work plan objectives of 90 percent.

4-20-94 Revised

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

The following minor deficiencies were identified during data validation which required qualification of data.

Laboratory Blanks

- Di-n-butylphthalate was detected in the laboratory blank. Attachments 2 and 5 provide a summary of the sample affected, data qualification applied and supporting documentation.

TENTATIVELY IDENTIFIED COMPOUNDS

Tentatively identified compounds (TICs) reported by the laboratory were evaluated during validation and qualified as follows:

- An unknown alkane detected in the sample has been qualified as presumptive and valid (JN).

- TICs were detected in the sample and associated laboratory blank and have been qualified due to associated blank contamination and determined to be presumptive and valid (UJN). Attachments 3 and 5 provide a summary of the sample affected, data qualification applied and supporting documentation.

REFERENCES

WHC, 1993a, Validation of 200 UP-2 Data, Statement of Work, Analytical Laboratory Data Validation, Task Order S-94-18, December 14, 1993, Purchase Order M073750. Westinghouse Hanford Company, Richland, Washington.

WHC, 1993b, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993. Westinghouse Hanford Company, Richland, Washington.

Revised 4-21-94

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the constituent was analyzed for and detected in the associated laboratory blank. This qualifier is applied by the laboratory. During the process of data validation this qualifier may be replaced by other appropriate qualifiers as defined by the validation procedures. The associated data should be considered usable for decision making purposes.

U - Indicates the constituent was analyzed for and not detected. The concentration reported is the sample quantitation limit corrected for aliquot size, dilution and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.

UJ - Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during data validation the concentration reported may not accurately reflect the sample quantitation limit. The associated data should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. This qualifier may be applied by the laboratory to indicate a concentration which is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). During data validation this qualifier may be applied to indicate a minor quality control deficiency. However in either case, the associated data should be considered usable for decision making purposes.

NJ - Indicates presumptive evidence of a constituent at an estimated value. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

N - Indicates presumptive evidence of a constituent. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

JN - Indicates a tentatively identified compound (TIC) whose concentration and identification have been determined to be valid as a result of data validation. The associated data should be considered usable for decision making purposes.

UJN - Indicates a tentatively identified compound (TIC) that has been determined to be presumptive and valid (JN) in terms of identification and quantitation and has been qualified as undetected (U) due to associated blank contamination.

UR - Indicates the constituent was analyzed for and not detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: B098Y7-TMA-628	REVIEWER: T. STAPP	DATE: 3-14-94	PAGE 1 OF 1
COMMENTS: SEMI-VOLATILE ORGANICS			
COMPOUND/ANALYTE	QUALIFIER	SAMPLES AFFECTED	REASON
DI-N-BUTYLPHTHALATE	U	B098Y7	DETECTED IN METHOD BLANK

Revised 4-20-94

ATTACHMENT 3

QUALIFIED DATA SUMMARY and ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: B098Y7-TMA-628

Parameter	Units	Result	Q
Sample#		B098Y7	
Date		10-7-93	
Location		---	
Depth		---	
Type		---	
Comments		---	
PHENOL	UG/KG	350.000	U
BIS(2-CHLOROETHYL)ETHER	UG/KG	350.000	U
2-CHLOROPHENOL	UG/KG	350.000	U
1,3-DICHLOROBENZENE	UG/KG	350.000	U
1,4-DICHLOROBENZENE	UG/KG	350.000	U
1,2-DICHLOROBENZENE	UG/KG	350.000	U
2-METHYLPHENOL	UG/KG	350.000	U
2,2'-OXYBIS(1-CHLOROPROPANE)	UG/KG	350.000	U
4-METHYLPHENOL	UG/KG	350.000	U
N-NITROSO-DI-N-PROPYLAMINE	UG/KG	350.000	U
HEXACHLOROETHANE	UG/KG	350.000	U
NITROBENZENE	UG/KG	350.000	U
ISOPHORONE	UG/KG	350.000	U
2-NITROPHENOL	UG/KG	350.000	U
2,4-DIMETHYLPHENOL	UG/KG	350.000	U
BIS(2-CHLOROETHOXY)METHANE	UG/KG	350.000	U
2,4-DICHLOROPHENOL	UG/KG	350.000	U
1,2,4-TRICHLOROBENZENE	UG/KG	350.000	U
NAPHTHALENE	UG/KG	350.000	U
4-CHLOROANILINE	UG/KG	350.000	U
HEXACHLOROBUTADIENE	UG/KG	350.000	U
4-CHLORO-3-METHYLPHENOL	UG/KG	350.000	U
2-METHYLNAPHTHALENE	UG/KG	350.000	U
HEXACHLOROCYCLOPENTADIENE	UG/KG	350.000	U
2,4,6-TRICHLOROPHENOL	UG/KG	350.000	U
2,4,5-TRICHLOROPHENOL	UG/KG	860.000	U
2-CHLORONAPHTHALENE	UG/KG	350.000	U
2-NITROANILINE	UG/KG	860.000	U
DIMETHYLPHTHALATE	UG/KG	350.000	U
ACENAPHTHYLENE	UG/KG	350.000	U
3-NITROANILINE	UG/KG	860.000	U
ACENAPHTHENE	UG/KG	350.000	U

Verified 3-15-94

Validated Data Summary, Data Package: B098Y7-TMA-628

Parameter	Units	Samp# B098Y7	Result	Q
Date		10-7-93		
Location		---		
Depth		---		
Type		---		
Comments		---		
2,4-DINITROPHENOL	UG/KG		860.000	U
4-NITROPHENOL	UG/KG		860.000	U
DIBENZOFURAN	UG/KG		350.000	U
2,4-DINITROTOLUENE	UG/KG		350.000	U
2,6-DINITROTOLUENE	UG/KG		350.000	U
DIETHYLPHTHALATE	UG/KG		350.000	U
4-CHLOROPHENYL-PHENYLETHER	UG/KG		350.000	U
FLUORENE	UG/KG		350.000	U
4-NITROANILINE	UG/KG		860.000	U
4,6-DINITRO-2-METHYLPHENOL	UG/KG		860.000	U
N-NITROSODIPHENYLAMINE	UG/KG		350.000	U
4-BROMOPHENYL-PHENYLETHER	UG/KG		350.000	U
HEXACHLOROBENZENE	UG/KG		350.000	U
PENTACHLOROPHENOL	UG/KG		860.000	U
PHENANTHRENE	UG/KG		350.000	U
ANTHRACENE	UG/KG		350.000	U
CARBAZOLE	UG/KG		350.000	U
DI-N-BUTYLPHTHALATE	UG/KG		350.000	U
FLUORANTHENE	UG/KG		350.000	U
PYRENE	UG/KG		350.000	U
BUTYLBENZYLPHTHALATE	UG/KG		350.000	U
3,3'-DICHLOROBENZIDINE	UG/KG		350.000	U
BENZO(A)ANTHRACENE	UG/KG		350.000	U
BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG		350.000	U
CHRYSENE	UG/KG		350.000	U
DI-N-OCTYLPHTHALATE	UG/KG		350.000	U
BENZO(B)FLUORANTHENE	UG/KG		350.000	U
BENZO(K)FLUORANTHENE	UG/KG		350.000	U
BENZO(A)PYRENE	UG/KG		350.000	U
INDENO(1,2,3-CD)PYRENE	UG/KG		350.000	U
DIBENZ(A,H)ANTHRACENE	UG/KG		350.000	U
BENZO(G,H,I)PERYLENE	UG/KG		350.000	U

3-18-94

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B098Y7

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 10014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A310014-01B

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 31021I03

Level: (low/med) LOW Date Received: 10/11/93

% Moisture: 8 decanted: (Y/N) N Date Extracted: 10/13/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 10/21/93

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.6

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
108-95-2	Phenol	350	U
111-44-4	bis(2-Chloroethyl)Ether	350	U
95-57-8	2-Chlorophenol	350	U
541-73-1	1,3-Dichlorobenzene	350	U
106-46-7	1,4-Dichlorobenzene	350	U
95-50-1	1,2-Dichlorobenzene	350	U
95-48-7	2-Methylphenol	350	U
108-60-1	2,2'-oxybis(1-Chloropropane)	350	U
106-44-5	4-Methylphenol	350	U
621-64-7	N-Nitroso-Di-n-Propylamine	350	U
67-72-1	Hexachloroethane	350	U
98-95-3	Nitrobenzene	350	U
78-59-1	Isophorone	350	U
88-75-5	2-Nitrophenol	350	U
105-67-9	2,4-Dimethylphenol	350	U
111-91-1	bis(2-Chloroethoxy)Methane	350	U
120-83-2	2,4-Dichlorophenol	350	U
120-82-1	1,2,4-Trichlorobenzene	350	U
91-20-3	Naphthalene	350	U
106-47-8	4-Chloroaniline	350	U
87-68-3	Hexachlorobutadiene	350	U
59-50-7	4-Chloro-3-Methylphenol	350	U
91-57-6	2-Methylnaphthalene	350	U
77-47-4	Hexachlorocyclopentadiene	350	U
88-06-2	2,4,6-Trichlorophenol	350	U
95-95-4	2,4,5-Trichlorophenol	860	U
91-58-7	2-Chloronaphthalene	350	U
88-74-4	2-Nitroaniline	860	U
131-11-3	Dimethylphthalate	350	U
208-96-8	Acenaphthylene	350	U
99-09-2	3-Nitroaniline	860	U
83-32-9	Acenaphthene	350	U
51-28-5	2,4-Dinitrophenol	860	U

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Verified 3-15-94

X 3-18-94

000081

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B098Y7

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 10014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A310014-01B

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 31021I03

Level: (low/med) LOW Date Received: 10/11/93

% Moisture: 8 decanted: (Y/N) N Date Extracted: 10/13/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 10/21/93

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-02-7	4-Nitrophenol	860	U
132-64-9	Dibenzofuran	350	U
121-14-2	2,4-Dinitrotoluene	350	U
606-20-2	2,6-Dinitrotoluene	350	U
84-66-2	Diethylphthalate	350	U
7005-72-3	4-Chlorophenyl-phenylether	350	U
86-73-7	Fluorene	350	U
100-01-6	4-Nitroaniline	860	U
534-52-1	4,6-Dinitro-2-methylphenol	860	U
86-30-6	N-Nitrosodiphenylamine (1)	350	U
101-55-3	4-Bromophenyl-phenylether	350	U
118-74-1	Hexachlorobenzene	350	U
87-86-5	Pentachlorophenol	860	U
85-01-8	Phenanthrene	350	U
120-12-7	Anthracene	350	U
86-74-8	Carbazole	350	U
84-74-2	Di-n-Butylphthalate	350 ~~230~~ ~~B~~	U
206-44-0	Fluoranthene	350	U
129-00-0	Pyrene	350	U
85-68-7	Butylbenzylphthalate	350	U
91-94-1	3,3'-Dichlorobenzidine	350	U
56-55-3	Benzo(a)Anthracene	350	U
117-81-7	bis(2-Ethylhexyl)Phthalate	350	U
218-01-9	Chrysene	350	U
117-84-0	Di-n-Octyl Phthalate	350	U
205-99-2	Benzo(b)Fluoranthene	350	U
207-08-9	Benzo(k)Fluoranthene	350	U
50-32-8	Benzo(a)Pyrene	350	U
193-39-5	Indeno(1,2,3-cd)Pyrene	350	U
53-70-3	Dibenz(a,h)Anthracene	350	U
191-24-2	Benzo(g,h,i)Perylene	350	U

(1) - Cannot be separated from Diphenylamine

Q

U

011

FORM I SV-2

3/90

~~3-18-94~~ 000082

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B098Y7

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 10014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A310014-01B

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 31021I03

Level: (low/med) LOW Date Received: 10/11/93

% Moisture: 8 decanted: (Y/N) N Date Extracted: 10/13/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 10/21/93

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.6

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Q
1.		UNKNOWN HYDROCARBON	5.33	140	~~BJ~~	UJ
2.		UNKNOWN HYDROCARBON	5.87	1800	~~BJ~~	UJ
3.		PROPANOIC ACID ESTER	16.25	320	~~J~~	UJ
4.		HEXANEDIOIC ACID ESTER	24.57	180	~~J~~	UJ
5.		UNKNOWN ALKANE	28.85	110	~~J~~	~~J~~

Verified
3-25-94
JN
3-18

Revised
4-20-94

012

ATTACHMENT 4

LABORATORY NARRATIVE and CHAIN-OF-CUSTODY DOCUMENTATION

D0000021

3-18-94

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 10-7-93

Ice Chest No.: SWL-54B

Field Logbook No.: EFL-1091

Bill of Lading/Airbill No.:

Offsite Property No.:

Method of Shipment: OVERNIGHT AIR SERVICE

Shipped to: TMA

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) NONE NOTED

Sample Identification

1) aG SER 10-7-93 B098Y7

- 1,250ml P:CLP;TAL Metals,Hg,Ti
- 1,250ml aGs:VOA CLP
- 1,250ml aG:Semi-VOA CLP
- 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
- 1,125ml G:Cyanide CLP
- 1,125ml GW:Kerosene (8015M)
- 1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

SWL 227 10-22

2) 1,250ml aGs PCB/Pest

- ~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
- ~~1,250ml Gs:VOA CLP~~
- ~~1,250ml aG:Semi-VOA CLP~~
- ~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
- ~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
- ~~1,125ml G:Cyanide CLP~~
- ~~1,125ml GW:Kerosene (8015M)~~
- ~~1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79~~

3) SER 10-7-93

- ~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
- ~~1,250ml Gs:VOA CLP~~
- ~~1,250ml aG:Semi-VOA CLP~~
- ~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
- ~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
- ~~1,125ml G:Cyanide CLP~~
- ~~1,125ml GW:Kerosene (8015M)~~
- ~~1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79~~

[] Field Transfer of Custody

Chain of Possession (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
10-8-93 Lorene E. Rogers 1122	JG Hogan / LJ Hogan	10-8-93 / 1122
JG Hogan / LJ Hogan 10-8-93 1135	H. Narciso / TMA/NORCAL	10-11-93 8:00

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

Recvd SATURDAY 10-9-93

OPENED 10/11/93

014

3-18-94

000072

CASE NARRATIVE

LABORATORY : TMA/ARLI

CASE : 10-014

CONTRACT ID : WESTINGHOUSE HANFORD COMPANY

SDG RECEIPT DATE : October 11, 1993

1.0 DESCRIPTION OF CASE :

Two soil samples were analyzed for TCL Organics - Volatiles, Semivolatiles, and Pesticide/PCBs according to the USEPA Contract Laboratory Program (CLP) Statement of Work for Organic Analysis, Revision OLM01.8. The Total Petroleum Hydrocarbons in the Kerosene range (K) were analyzed according to the SW-846 Method 8015M.

9113275.1923

2.0 SAMPLE LIST :

WESTINGHOUSE ID	LAB ID	ANALYSIS REQUESTED	MATRIX
B098Y7	A3-10-014-01A	V	SOIL
B098Y7	A3-10-014-01B	SV	SOIL
B098Y7 MS	A3-10-014-01C	SV	SOIL
B098Y7 MSD	A3-10-014-01D	SV	SOIL
B098Y7	A3-10-014-01H	K	SOIL
B098Y7 MS	A3-10-014-01I	K	SOIL
B098Y7 MSD	A3-10-014-01J	K	SOIL
B098Y7	A3-10-014-01K	P	SOIL
B098Y7 MS	A3-10-014-01L	P	SOIL
B098Y7 MSD	A3-10-014-01M	P	SOIL
B098Y9	A3-10-014-02A	V	SOIL
B098Y9 MS	A3-10-014-02B	V	SOIL
B098Y9 MSD	A3-10-014-02C	V	SOIL

3.0 COMMENTS :

3.1 SHIPPING AND DOCUMENTATION :

All of the samples were received intact and properly documented.

On October 23, 1993, the Westinghouse Hanford Company cancelled the analysis of samples B098Y7 and B098Y9, despite the fact that the Volatile samples had already been analyzed, and the samples were extracted for Semivolatiles, Pesticides, and Extractable Hydrocarbons. On November 3, 1993, TMA/ARLI, in accordance with ROD-93-0241, reinitiated the analyses and reporting of the aforementioned samples.

3-18-94

000073

3.2 ANALYSIS

3.2.1 VOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were analyzed by heated purge within the CLP SOW holding times.

All of the QC results were within the limits specified by the EPA CLP SOW.

TUNES :

All BFB tunes were injected directly into the GC/MS instrument.

3.2.2 SEMIVOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were extracted and analyzed within the contract required holding times. No TCL analytes were detected in the samples.

All of the QC results were within the limits specified by the EPA CLP SOW.

3.2.3 PESTICIDE/PCB ANALYSIS COMMENTS :

SEQUENCE NOTES :

The sequence was started on 11/02/93 and was analyzed according to the USEPA CLP SOW. The sequence was analyzed by a single injection into a dual column system.

During the analysis sequence, the Autosampler malfunctioned, and after the injection of the PIBLKs and the PEMs, the sequence was continued. The %RSD for all of the analytes were within the QC limits on both of the GC columns, with the exception of alpha- and delta-BHC on the DB-608 column, which were slightly above 20% but less than the 30% limit.

Several Aroclor standards were injected throughout the sequence in order to confirm the presence of Aroclors in the samples. Although the retention times for some peaks exceeded their retention time window, the identification of each Aroclor was based primarily on the pattern recognition for each peak in the chromatogram.

All of the other QC criteria were within the limits specified by the EPA CLP SOW.

The chromatograms are presented in the manner consistent with the capabilities of the Nelson 2700 Turbochrome Data System which normalizes the largest peak to scale.

LOW LEVEL SOIL :

The samples were extracted and analyzed within the contract required holding times.

The TCX surrogate recoveries on the DB-608 column for samples B098Y7MS and B098Y7MSD were slightly below the advisory QC limits. However, the TCX recoveries on the DB-1701 column were higher for all of the samples in comparison to the DB-608 column, due to the interference peaks that coeluted with TCX on the DB-1701 column, therefore yielding higher recoveries. The %D between the two GC columns, for TCX in the spiked and unspiked samples, were greater than the 25% limit. The DCB recoveries on the two GC columns were comparable for all of the samples.

All of the other QC results were within the limits specified by the USEPA CLP SOW.

3.2.4 TOTAL PETROLEUM HYDROCARBONS "KEROSENE RANGE" COMMENTS :

SEQUENCE NOTES :

The sequence was started on 12/01/93, with the injection of a continuing calibration, and was analyzed according to the SW-846 Method 8015M. The instrument calibration was performed on 11/18/93 with the injection of 5 different levels of the Kerosene standard. The %RSD for the initial calibration, and the %D for the continuing calibration were all within their respective QC limits as specified by the SW-846 Method 8015M. respectively.

SAMPLE NOTES :

LOW LEVEL SOIL :

The samples were extracted within the SW-846 holding time. However, the sample extracts were analyzed 10 days outside of the holding time due to laboratory miscommunication. The laboratory has taken the appropriate steps to ensure that this will not happen again. No Kerosene was detected in the samples.

Sample B098Y7 was spiked with Kerosene. The matrix spike recovery in B098Y7MS was 61%, and 59% in sample B098Y7MSD. A blank spike, KLCS1014S, was prepared and analyzed at the same time, and had a 70% recovery.

All of the QC results were within the limits specified by the SW-846 Method 8015M.

3-18-94

000075

We certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data in this hardcopy data package and in the computer-readable data submitted on diskette is authorized by the Laboratory Manager or his designee, as verified by the following signatures.

94/7225.0926

Nicole Roth

Nicole Roth 12/14/93
CLP Program Manager

Maureen Parrish

Maureen Parrish 12/14/93
Program Manager

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E (circled)

PROJECT: 200 UP-2	DATA PACKAGE: B0984Y7-TMA-628	
VALIDATOR: T. Staff	LAB: TMA	DATE: 3-14-94
CASE: 10-014	SDG:	

ANALYSES PERFORMED

☐ CLP Volatiles	☐ SW-846 8240 (cap column)	☐ SW-846 8260 (packed column)	☑ CLP Semivolatiles	☐ SW-846 8270 (cap column)	☐ SW-846 (packed column)
☐	☐	☐	☐	☐	☐

SAMPLES/MATRIX B0984Y7, Soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? Note ① . . . (Yes) No N/A

Is a case narrative present? . . . . . (Yes) No N/A

Comments: ① Performed by WHC.

2. HOLDING TIMES

Are sample holding times acceptable? . . . . . (Yes) No N/A

Comments: See Holding Time Summary page B-1.

020

GC/MS ORGANIC DATA VALIDATION CHECKLIST

3. INSTRUMENT TUNING AND CALIBRATION

Is the GC/MS tuning/performance check acceptable? . . . . . (Yes) No N/A

Are initial calibrations acceptable? . . . . . (Yes) No N/A

Are continuing calibrations acceptable? . . . . . (Yes) No N/A

Comments: _____

4. BLANKS

Were laboratory blanks analyzed? . . . . . (Yes) No N/A

Are laboratory blank results acceptable? Note ① and ③ . . . (Yes) No N/A

Were field/trip blanks analyzed? . . . . . Note ② . . . Yes No (N/A)

Are field/trip blank results acceptable? . . . . . Yes No (N/A)

Comments: ① Lab blank TIC's are present. See Method blank Summary page for results affecting sample TIC's. ② Field blank QC samples have not been identified in this sample set, but have been requested. Field QC will be evaluated in the final data Summary.

③ Dimethylphthalate raised to CRQL and qualified U, since blank is ie than CRQL.

5. ACCURACY

Were surrogates/System Monitoring Compounds analyzed? . . . . (Yes) No N/A

Are surrogate/System Monitoring Compound recoveries acceptable? (Yes) No N/A

Were MS/MSD samples analyzed? . . . . . (Yes) No N/A

Are MS/MSD results acceptable? . . . . . (Yes) No N/A

Comments: _____

9117225.0929

-021

GC/MS ORGANIC DATA VALIDATION CHECKLIST

6. PRECISION

Are MS/MSD RPD values acceptable? . . . . . (Yes) No N/A

Are field duplicate RPD values acceptable? . Note ① . . . . . Yes No (N/A)

Are field split RPD values acceptable? . . . . . Yes No (N/A)

Comments: ① Field QC duplicates and splits are not identified in this Sample Set, but it has been requested. Field QC will be evaluated in the final data Summary.

7. SYSTEM PERFORMANCE

Were internal standards analyzed? . . . . . (Yes) No N/A

Are internal standard areas acceptable? . . . . . (Yes) No N/A

Are internal standard retention times acceptable? . . . . . (Yes) No N/A

Comments:

8. COMPOUND IDENTIFICATION AND QUANTITATION

Is compound identification acceptable? . . . . . (Yes) No N/A

Is compound quantitation acceptable? . . . . . (Yes) No N/A

Comments:

9. REPORTED RESULTS AND QUANTITATION LIMITS

Are results reported for all requested analyses? . . . . . (Yes) No N/A

Are all results supported in the raw data? . . . . . (Yes) No N/A

Do results meet the CRQLs? . . . . . (Yes) No N/A

Has the laboratory properly identified and coded all TIC? . . (Yes) No N/A Note ①

Comments: ① The ~~unknown alkane~~ TICs have been qualified ~~as presumptive and estimated~~ according to WHC validation procedure.

RS 4-20-94

Revised 4-20-94

HOLDING TIME SUMMARY

SDG: B098Y7-TMA-C28	VALIDATOR: T. Stapp	DATE: 3-14-94	PAGE 1 OF 1
COMMENTS:			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B098Y7	SemiVOA	10-7-93	10-13-94	10-21-93	≤14 ~~≤7~~	≤40	NONE

3/14/94

METHOD BLANK SUMMARY

E3-18 ~~000267~~

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SBLK1013S1

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 10014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A310014-BLK

Sample wt/vol: 30.3 (g/mL) G Lab File ID: 31021I02

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N) N Date Extracted: 10/13/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 10/21/93

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ____

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	5.28	130	J
2.	UNKNOWN HYDROCARBON	5.83	1500	J
3.	HEXANEDIOIC ACID ESTER	24.53	99	J
4.	PROPANOIC ACID ESTER	16.22	260	J

94/4225.0932

All TIC's found will qualify associated sample BC98Y7 TIC's ~~as non-detected (U) when less than 5 x the method blank amount.~~ as undetected, presumptive and valid. (UJN).

~~3-14-94~~

4-20-94

FORM I SV-TIC 3/90

Revised 4-20-94

-021